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### (54) Title: METHODS AND COMPOSITION FOR ORAL VACCINATION

(57) Abstract: The present invention encompasses methods and compositions both for providing protection against disease in an animal and for inducing increased intake of an orally administered vaccine by an animal. The methods of the invention are directed to admixing a bacterial or viral antigen with a water soluble palatable flavorant, further admixing the antigen and flavorant mixture with a water soluble vehicle for oral administration of the vaccine to an animal in order to provide protection against disease associated with infection by the admixed antigen and to induce the increased intake of the vaccine with the flavorant. The present invention thus encompasses methods and compositions for the oral vaccination of healthy animals through drinking water or syrups as an aid in the prevention of disease. The admixing of the palatable flavorant provides for a vaccine formulation with a desirable taste in order to promote self-administration of the vaccine formulation and/or to prevent rejection of the formulation when administered by an animal handler.

### INTERNATIONAL SEARCH REPORT

Intr \*ional Application No PC | /US 01/20155

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A61K39/02 A61K A61P31/00 A61K39/12 According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) A61K IPC 7 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) BIOSIS, EPO-Internal, PAJ, WPI Data, EMBASE C. DOCUMENTS CONSIDERED TO BE RELEVANT Relevant to claim No. Citation of document, with indication, where appropriate, of the relevant passages 1-7, US 5 882 649 A (PANG G T ET AL) X 12-17, 16 March 1999 (1999-03-16) 21-24,26 column 3, line 28 -column 4, line 17 1-26 US 5 985 336 A (IVEY F.J. ET AL) Α 16 November 1999 (1999-11-16) the whole document 1-26 GB 1 102 676 A (HART H.W.) A 7 February 1968 (1968-02-07) the whole document US 5 884 583 A (JOHNSTON J.H. ET AL.) 1-26 A 23 March 1999 (1999-03-23) the whole document Patent family members are tisted in annex. Further documents are listed in the continuation of box C. X Special categories of cited documents: \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such docudocument referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled other means \*P\* document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of mailing of the international search report Date of the actual completion of the international search 24/04/2002 15 April 2002 Authorized officer Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentiaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Moreau, J Fax: (+31-70) 340-3016

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